Painesville PRP Group
10265 Woodbury Road
Laingsburg, Michigan 48848
(517) 651-2400

September 24, 2009

Ms. Teri Heer
Site Coordinator
Ohio EPA Division of Emergency and Remedial Response
2110 E. Aurora Road
Twinsburg, Ohio 44087

RE: Notification of Design Modification to Operable Units 16 (OU16) Site Improvements Project-Former Diamond Shamrock Painesville Works Site; TER016.600.0002.

Dear Ms. Heer:

Since the fall of 2007, the Painesville PRP Group (PRP Group) has been engaged in completing work associated with the approved Interim Action Work Plan (IAWP) for Operable Unit 16 (OU16) Site Improvements, which was approved by US EPA on October 19, 2006 and by Ohio EPA on October 30, 2006. To date, this work has resulted in the embankment of approximately 500,000 cubic yards of clean soil on OU16. This soil has been used in the construction of the proposed, low-permeability clay layer over the entire OU16 site, and was used to cover approximately 84 acres of OU16 with engineered fill suitable to support storm water and irrigation infrastructure for future golf course construction. Storm water improvements have also been implemented as described in the approved IAWP. The installation of 163 catch basins and manholes connected by over 18,980 feet (over 3.5 miles) of storm sewer pipe has also been completed since the start of work on OU16.

The PRP Group recently reviewed the grading and storm sewer installation design within an approximately 16-acre area located in the southwestern portion of OU16 prior to the completion of these designed improvements. The PRP Group proposes to modify the project design within this area in order to reduce the magnitude of additional fill quantities that otherwise would be required to finish this portion of the work pursuant to the original design. These proposed modifications are consistent with the objectives of the approved IAWP, and the area where changes are proposed is shown on Figure 1.

The PRP Group engaged their environmental, engineering, and surveying consultants (Hull & Associates, Inc., CT Consultants, Inc., and URS Corporation) to re-evaluate this 16-acre portion of OU16. Several design requirements were implemented prior to this re-evaluation to maintain consistency with the approved IAWP:

1. No work would be conducted that would result in less than 24 inches of the existing clay cap material to maintain the vertical separation required by the approved IAWP
2. A minimum of six inches of low-permeability material (a minimum value of 1x10-7 centimeters per second vertical conductivity) would be placed above the 24-inches of existing clay cap material to ensure a reduced infiltration rate over the entire OU16 area.
3. Surface water run-off would be managed such that no water would be permitted to pond or lay stagnant within the limits of OU16 to maintain consistency with Ohio and US EPA requirements regarding storm water management on OU16.

4. All disturbed surfaces would be stabilized pursuant to the Storm Water Pollution Prevention Plan (SWP3) requirements of the original design and with the IAWP to prevent erosion.

A revised grading and drainage plan was developed based on those criteria. Figure 2 shows the proposed modifications. A comparison of Figure 1 and Figure 2 shows that less soil will be embanked based on the proposed modifications. The revised grading and drainage design also requires some storm sewer pipes originally intended to be covered by the additional golf course fill material to be replaced with storm water conveyance swales in the proposed design. Additional details of the storm water conveyance swales are shown in Figure 3.

Implementation of this plan will be conducted in the same manner as described in the approved IAWP:

1. All appropriate SWP3 requirements will be implemented;
2. Any necessary grading cuts into the existing clay cap material will be completed (leaving a minimum 24 inches of existing clay cap material);
3. Placement of the minimum 6-inch layer of low-permeability clay material will be completed above the existing cap material;
4. Additional soils required for storm water drainage will be embanked;
5. Storm water conveyance swales will be installed (in lieu of storm sewers); and
6. Seeding and stabilization of all disturbed areas will be conducted according to the SWP3 requirements.

The modifications proposed in the attached revised grading and drainage plan will result in less storm sewer being installed. Approximately 2,940 feet of storm sewer pipe and as many as 23 catch basin structures will not be installed with in the area shown on Figure 1. Storm water conveyance swales will be installed to appropriately manage the storm water in lieu of the planned storm sewers. An engineering analysis was performed and predicted storm water flows and velocities resulting from the upstream storm sewer flows were used to establish the appropriate size and erosion protection in the swales. As a result, the proposed storm water conveyance swales will provide equal performance for storm water flow as the uninstalled storm sewer. Implementing these revised project requirements also will result in approximately 47,000 fewer cubic yards of clean soil fill.

A 6 to 12 inch layer of sand material was also proposed as part of the IAWP. As was previously discussed with Ohio EPA, this layer of sand material was designed as part of the golf course construction. Delays in golf course construction also necessitate a delay in installation of the proposed sand material. The PRP Group acknowledges that lateral drainage is an important factor in reducing overall infiltration on OU16. However, the infiltration model conducted for the approved IAWP (the Hydrologic Evaluation of Landfill Performance [HELP] model) shows that the sand layer associated with the design specific to the original construction had no significant effect on the actual performance of the cap system. Rather, the capacity of the storm water run-off infrastructure was the limiting factor to the storm water infiltration portion of the overall infiltration quantity obtained from the HELP model. As the capacity of the storm water run-off infrastructure has remained the same, the absence of the sand layer will not materially affect

the cap performance. Further, the entire surface of OU16 will be covered with topsoil and a vegetative cover to complete the work.

The modifications still will result in the completion of the 6-inch minimum, low-permeability clay layer over the entire area of OU16. A minimum of 24 inches of underlying, existing clay material also will be maintained, and the resulting grades on OU16 will continue to meet the objective of reduced infiltration and improved site drainage.

In summary, these changes to the OU16 Site Improvements design will have no significant impact to the objectives of the approved IAWP for OU16. The PRP Group has begun implementing the proposed design changes and anticipates completion by October 1, 2009.

Please call me directly at (517) 651 - 2400 or Matt Montecalvo with Hull & Associates, Inc. at (440) 232-9945 with your approval or with any questions.

Sincerely,

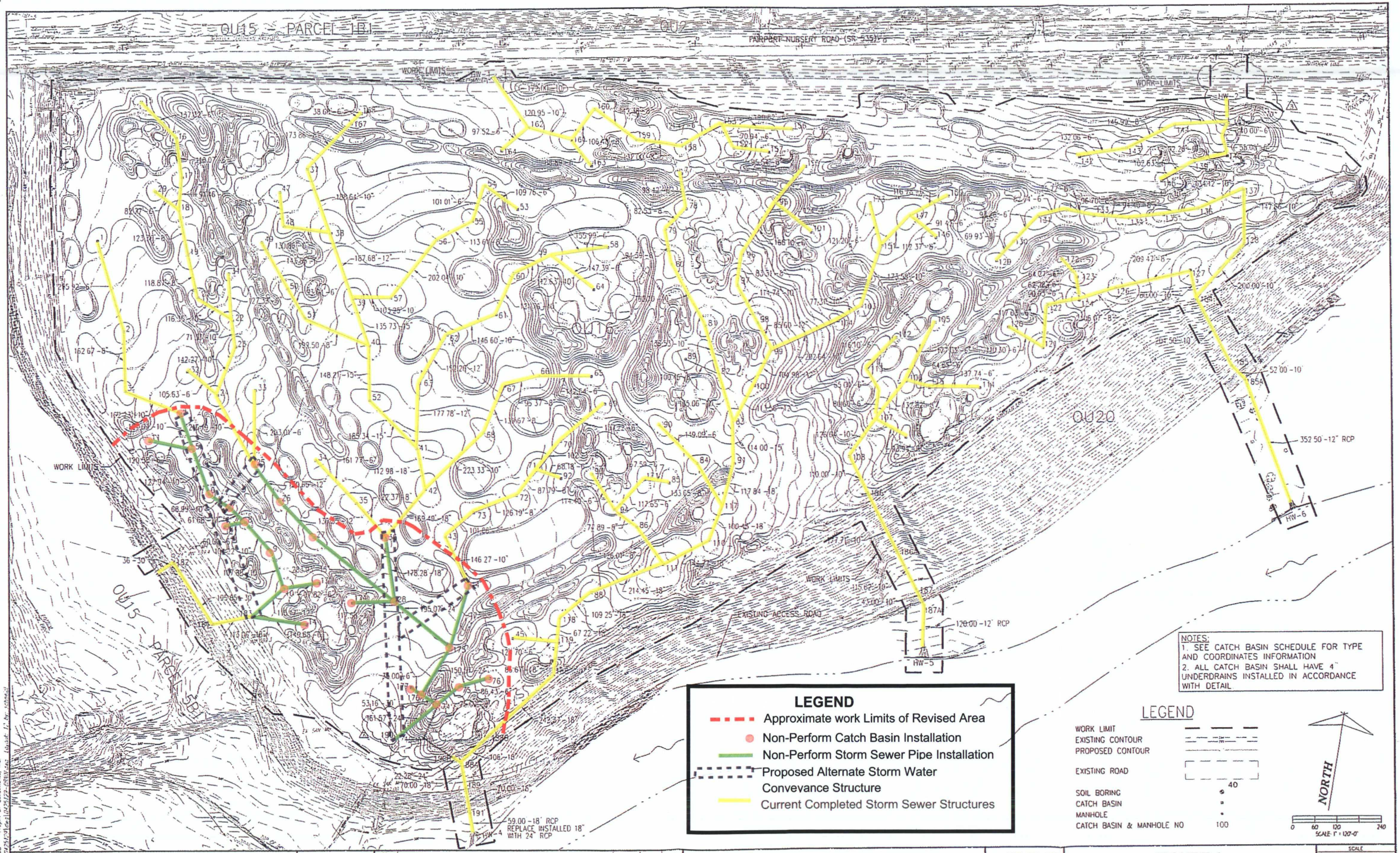
Valerie Gill for

Teresa C. Jordan
Site Coordinator

Enc.

cc: Dr. Timothy Christman, Ohio EPA
Ms. Linda Martin, US EPA
Mr. Enrique Castro, Tierra Solutions
Ms. Chris DeJarlais, Boulder Environmental Consulting
Ms. Johanna Coulter, Andrews Kurth
Mr. Nathan Scott, Tierra Solutions
Mr. Byron Best, Tierra Solutions
Mr. Todd Davis, Hemisphere
Ms. Jenifer Kwasniewski, JK Environmental Solutions
Mr. Matthew Montecalvo, Hull & Associates Inc.

FIGURES



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STATE OF OHIO · J. WESLEY HALL · E-58381 · REGISTERED · PROFESSIONAL ENGINEER

REV. NO.	DESCRIPTION	DATE	BY	CH'K'D.
2	COMBINED OUTFALLS 4 & 7 AND EXTENDED OUTFALLS 5, 6	2/07	SAW	LCS
3	REVISE HEADWALL 2	2/08	LCS	LCS
4	REVISE ALIGN. CB#28 - HW#3	2/08	LCS	LCS
5	REVISE ALIGN. CB14-HW3, CB28-CB188A	3/08	LCS	LCS
6	REVISE ALIGN. CB188-CB188A CB190A-CB188A	9/08	SAB	LCS
7	REVISE ALIGN. CB188-CB188A, CB74-CB188A	12/08	LCS	LCS

LAKEVIEW BLUFFS
OPERABLE UNIT 16
GRADING AND DRAINAGE PLAN
PAINESVILLE TOWNSHIP, LAKE COUNTY, OHIO

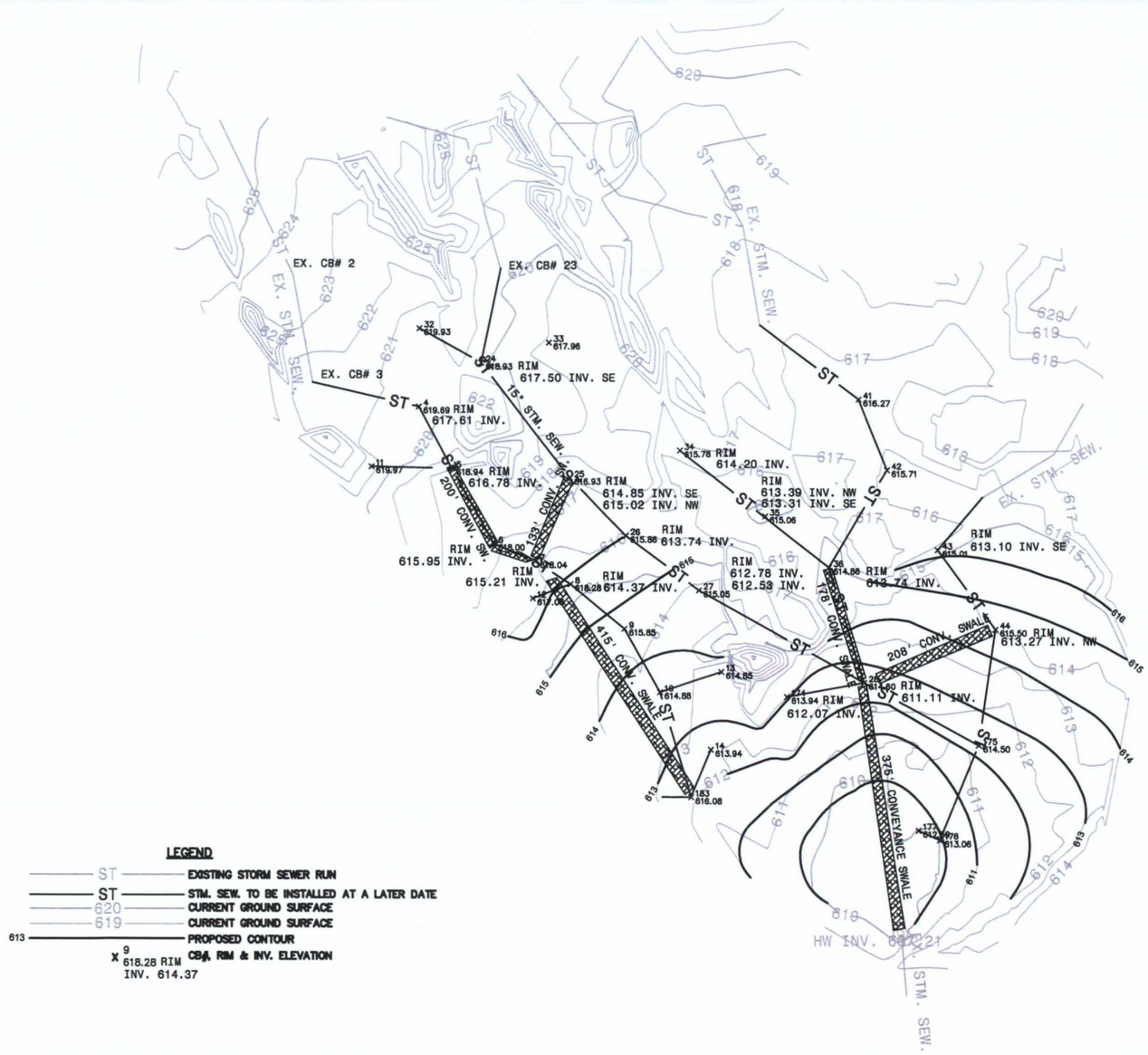
DATE: DECEMBER 2008
DRAWN BY: KPA
CHECKED BY: DMB
APPROVED BY: JWH
F.B. No. – F.G. –

FIGURE 1

STORM SEWER PLAN

SEPTEMBER 11, 2009

SCALE: HOR. AS NOTED; VERT.
CONTRACT No. 04251-29
SHEET NO. 12 OF 39



LEGEND

- ST — EXISTING STORM SEWER RUN
- ST — STM. SEW. TO BE INSTALLED AT A LATER DATE
- 620 — CURRENT GROUND SURFACE
- 619 — CURRENT GROUND SURFACE
- 613 — PROPOSED CONTOUR
- x 9 618.28 RIM INV. 614.37 — CB#, RIM & INV. ELEVATION

N

0 50 100 200

SCALE IN FEET

NOTES:

1) ALL FEATURES ON THIS MAP WERE OBTAINED FROM URS CORPORATION.

2) THE REVISED SET OF PROJECT REQUIREMENTS FOR THIS AREA WAS DEVELOPED BY HULL & ASSOCIATES, INC., CT CONSULTANTS AND URS CORPORATION.

Hull & associates, inc.
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www.hullinc.com

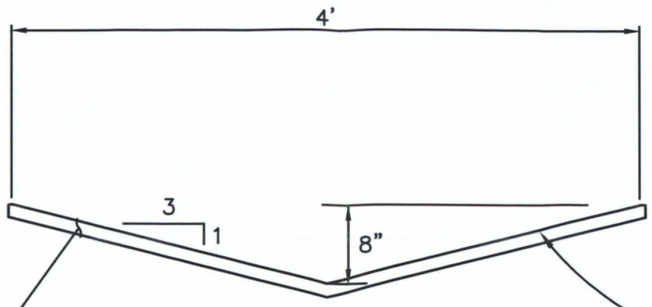
DESIGN MODIFICATION TO OPERABLE UNITS 16 (OU16)
SITE GRADING AND LANDFILL CAP IMPROVEMENTS PROJECT

FIGURE 2
OU16 GRADING AND DRAINAGE DESIGN MODIFICATIONS

FORMER DIAMOND SHAMROCK PAINESVILLE WORKS SITE
PAINESVILLE, LAKE COUNTY, OHIO

PROJECT NO.: TER016	SUBMITTAL DATE: SEPTEMBER 2009
CAD DWG FILE: TER016.100.0001 GAC	PLOT DATE: 9/14/09

OU16 DRAINAGE SWALES
LAKEVIEW BLUFFS

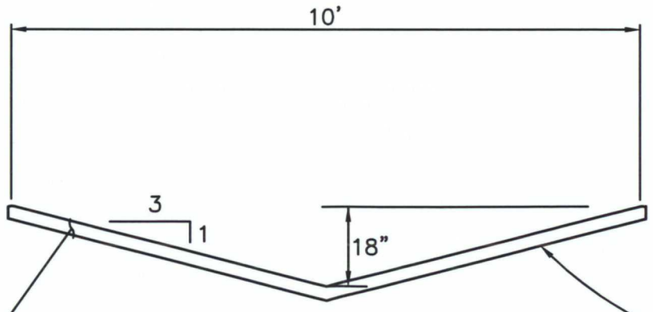


TOPSOIL AND SEEDING PER PROJECT SPECIFICATIONS

DRAINAGE SWALE FOR 10" OUTFALLS

NOT TO SCALE

PLACE OUTLET PROTECTION PER DETAIL ON OU16 CONSTRUCTION DRAWINGS (L=6', W=4', TYPE D ROCK(3"–6" ACCEPTABLE)) RIGHT AT OUTFALL. SWALE FROM OUTLET PROTECTION TO EX. 24" OUTLET SHALL BE LINED WITH NORTH AMERICAN GREEN EROSION CONTROL MATTING TYPE S75 OR APPROVED EQUAL



TOPSOIL AND SEEDING PER PROJECT SPECIFICATIONS

DRAINAGE SWALE FOR 24" OUTFALL

NOT TO SCALE

PLACE OUTLET PROTECTION PER DETAIL ON OU16 CONSTRUCTION DRAWINGS (L=6', W=4', TYPE D ROCK(3"–6" ACCEPTABLE)) RIGHT AT OUTFALL. SWALE FROM OUTLET PROTECTION TO EX. 24" OUTLET SHALL BE LINED WITH NORTH AMERICAN GREEN EROSION CONTROL MATTING TYPE S75 OR APPROVED EQUAL

FIGURE 3